In the Claims:

Please cancel claims 1-13.

Please amend claim 14 to read as follows:

14. (Twice Amended) A method of detecting a target nucleic acid sequence comprising:

a) hybridizing a first primer to a first portion of a target sequence, wherein said first primer further comprises an adapter sequence;

b) hybridizing a second primer to a second portion of said target sequence wherein said first portion of said target sequence and said second portion of said target sequence are not adjacent;

c) extending either said first primer or said second primer towards the other;

d) ligating said first and second primers together to form a modified primer;

e) contacting said adapter sequence of said modified primer or its complement with an array comprising:

i) a substrate with a surface comprising discrete sites; and

ii) a population of microspheres comprising at least a first subpopulation comprising a first nucleic acid capture probe, such that said first capture probe and an amplification product of said modified primer form a hybridization complex; wherein said microspheres are distributed on said surface; and

f) detecting the presence of said modified primer, to thereby detect said nucleic acid sequence.

Please add claims 15 through 28:

15. The method according to claim 14 further comprising:

a) hybridizing a third primer to a first portion of a second target sequence, wherein said third primer further comprises a second adapter sequence;

b) hybridizing a fourth primer to a second portion of said second target sequence wherein said first portion of said second target sequence and said second portion of said second

target sequence are not adjacent;

c) extending either said third primer or said fourth primer towards the other;

d) ligating said third and fourth primers together to form a second modified primer;

e) contacting said second modified primer or its complement with said array, wherein said population of microspheres comprises at least a second subpopulation comprising a second capture probe, such that said second capture probe and said second modified primer or its amplification product form a hybridization complex comprising said second capture probe, said second adapter sequence; and

f) detecting the presence of said second modified primer.

16. The method according to claim 14, wherein said modified primer is amplified.

17. The method according to claim 14, wherein said wherein said detecting is done by hybridizing a labeled probe to said ligated first and second primers.

18. The method according to claim 14, wherein said substrate is a fiber optic bundle.

19. The method according to claim 14, wherein said discrete sites comprise wells.

20. The method according to claim 14, wherein said wherein said detecting is done by labeling amplification products from said ligated first and second primers.

21. The method according to claim 14, wherein said wherein either said first primer or said second primer is an allele specific primer.

22. A method for simultaneously detecting at least sixteen target nucleic acid sequences comprising:

a) hybridizing the first primer of at least sixteen pairs of primers to a first portion of at least sixteen target sequences, wherein each primer pair is specific for a different sequence, wherein said first primer further comprises an adapter sequence;

b) hybridizing a second primer of said primer pairs to a second portion of said target sequences;

c) ligating said first and second primers together to form a modified primer;

d) contacting said adapter sequence of said modified primer or its complement with an array comprising:

i) a substrate with a surface comprising discrete sites; and

ii) a population of microspheres comprising at least a first subpopulation comprising a first capture probe, such that said first capture probe and an amplification product of said modified primer form a hybridization complex; wherein said microspheres are distributed on said surface; and

e) detecting the presence of said modified primer.

23. The method according to claim 22, wherein said modified primers are amplified.

24. The method according to claim 22, wherein said wherein said detecting is done by hybridizing a labeled probe to said ligated first and second primers.

25. The method according to claim 22, wherein said substrate is a fiber optic bundle.

26. The method according to claim 22, wherein said discrete sites comprise wells.

27. The method according to claim 22, wherein said wherein said detecting is done by labeling amplification products from said ligated first and second primers.

28. The method according to claim 22, wherein said wherein one of said first primer or said second primer of each primer pair is an allele specific primer.

REMARKS

Applicant wishes to thank the Examiner for consideration of the prior response. Entry of these amendments is respectfully requested. The amendments do not constitute an admission regarding the patentability of this subject matter and should not be so construed. Applicant reserves the right to pursue the canceled subject matter in this or any other appropriate patent application.

In accordance with 37 C.F.R. § 1.121, a marked up copy of the presently amended claims is appended hereto; additions are noted by underlining, and deletions are noted by bracketing. Furthermore, to ensure that Applicants' pending claims match those of the Patent Office, a clean copy of the entire set of pending claims is appended hereto.